

## Age-related aspect of interrelations between life quality parameters and psychological peculiarities in a person with disabilities

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**Abstract.** The article represents the findings obtained from the empirical study of the interrelations between the indices of personal traits, emotional state and life quality in the persons with disabilities suffering from extremities deformity and dysfunction. The exploration surveyed 318 people at the age of 18 to 66. The specific character of the interrelations between emotional states, personal traits and life quality depends on the age of a human-being. At the younger age (19 to 39) the situational anxiety is most intensively attributed to the life quality and individual psychological characteristics of a personality. At the age of 40 to 49 it is replaced by the trait anxiety, while later – from 50 to 59 years old – anxiety is changed by depression. SF-36 method's factors demonstrate the greatest quantity of interrelations between the emotional states and personal traits of the patients of 40 to 59 years old, especially as concerning depression.

[Fedorenko M.V., Biktimirova F.M. **Age-related aspect of interrelations between life quality parameters and psychological peculiarities in a person with disabilities.** *Life Sci J* 2014;11(11s):13-17] (ISSN:1097-8135). <http://www.lifesciencesite.com>. 4

**Keywords:** life quality, anxiety, accentuation of personality traits, depression, extremities deformity and dysfunction

### Introduction

Disability remains nowadays one of the most acute medico-social challenges for the global society. The article by T.R. Dillingham et al. is dedicated to the problem of an increase in the number of the disabled ones due to lower extremities amputation in the United States. The authors note that the growth rates in the amputations after vascular and oncology diseases are reduced. The number of extremities hypoplasia is stable, though the amount of traumatic amputations increases. [1]

The researches performed in the recent years give evidence on the steady dynamics of an increase in the number of the disabled persons in the Russian Federation: more than 12 million people suffer from the injuries and accidents annually (850 to 10,000 inhabitants). [2]

The growth of the disabled persons' number creates many challenges before for the world community. One of the most important among them is the resurgence of the people with disabilities. Medical, psychological and social rehabilitation; aid and support; arrangement of favorable conditions for education, labor and employment; recommendation for further development are included to the content of the specially designed programs, dedicated grants and practical guidance. [3] The problems of the medical service availability for the people with disabilities in Brazil are studied in the article by S.S. Castro. [4]

The mental health services for the amputees can considerably decrease the manifestation of the depressive symptoms. The probability of the

depression's signs depends on the co-morbidities, loneliness, and stump neuralgia. At the same time, the University education prevents from the development of depression. [5]

Changes in the mental state of a personality and prevalence of depressive symptoms due to disability were reflected in the recently determined psychological phenomenon “internal picture of disability”. It has appeared due to limitations in the socially and psychologically sufficient spheres of vital activity. [6]

The problem of the disabled people's rights and interests protection is more frequently considered from the perspective of their life quality estimation. In recent years the concept of health-related life quality has been introduced in the rehabilitation. [7] It is the life quality that is considered as the integral characteristic of physical, mental and social functioning. It should serve as a guide mark for the estimation of the disabled patients' rehabilitation effectiveness. [8].

The definition of the “life quality” is logical and structurally connected to the concept of health defined by the World Health Organization (WHO) as follows: “Health is the complete physical, social and psychological prosperity of a human-being, but not the absence of disease simply”. [9] The individual plan of rehabilitation must be developed for each disabled person by the medical and technical specialists with due regard to the nosological entity, anatomic defect manifestation, general physical state,

social requests and opportunities to give satisfaction to them.

Research objectives: to reveal the interrelations between the life quality indicators, personal traits, and emotional state of the disabled persons suffering from extremities deformity and dysfunction.

### Research methods and management

The present research surveyed the trauma-related amputees who applied for prosthetic care to the Kazan Prosthetic Orthopedic Center. These are inhabitants of Kazan, some other cities, towns, settlements, and villages within the Republic of Tatarstan, Chuvash Republic, also some other Russian regions. The total number of the examined persons was 318 disabled ones at the age of 18 to 66. All surveyed have given their written consents to participation after clarification of the purpose and intent of the current research to them.

Subject to the research objectives the examined amputees were divided into 5 age groups: 19 to 29 (34 persons), 30 to 39 (37 persons), 40 to 49 (106 persons), 50 to 59 (80 persons), older than 60 (19 persons).

The empirical data were obtained applying the following methods:

1. SF-36 health status survey. [10]

The results are represented in 8 scales:

2. Physical Functioning – PF.
3. Role-Physical Functioning – RP.
4. Bodily Pain – BP.
5. General Health – GH.
6. Vitality – VT.
7. Social Functioning – SF.
8. Role-Emotional – RE.
9. Mental Health – MH.
10. Spielberger-Khanin State-Trait

Anxiety Inventory (STAI) adapted by Khanin. The questionnaire allows to differentiate the estimation of the anxiety as a personal trait (A-trait) and as a mental state (A-state).

11. Beck Depression Inventory (BDI).

12. Schmieschek-Leonhard Fragebogen.

The technique makes it possible to determine 10 types of accentuation of personality traits:

1) Hyperthymic (permanently in high spirits, excessive mental liveliness, craving for activity and tendency to fuming about and not to get the job done, undisciplined).

2) Excitable (short-tempered, explosive, excessively hot-blooded).

3) Emotive (unsociable, over-sensitive, sluggish, touchy).

4) Meticulous (stiff, formulary, grouser, trainspotter, exhausts one's relatives and friends with neatness).

5) Anxious (shyness as a personal trait, lack of self-confidence, liable to in-depth self-analysis, obsessive behavior manifestation).

6) Cyclothymic (liable to often change of heart – from hyperthymic to dysthymic).

7) Hysterical (self-centered, always strive for being in the highlight, pathological liar).

8) Fixed (vindictive, selfish, suspicious, revengeful, and liable to affective outbursts and aggression).

9) Dysthymic (sluggish, avoidant, thinking heaviness as a personal trait, pessimistic, keeps oneself to oneself).

10) Exalted (liable to affective exaltation, communicative, talkative, scaremonger, prone to instantaneous temper, fickle).

The obtained data were processed applying the Microsoft Excel and STATISTICA 7.0 software.

### Research results

The smallest number of the statistically reliable connections was observed in the age group of 19 to 29 (34 persons) in comparison with the other age groups (14).

The characteristics of SF-36 procedure in this age group demonstrate the following relations. The general health status of SF-36 procedure correlates with hysteria ( $r=-0.34$ ;  $p<0.05$ ), while there is no similar relation in other age groups. The more pessimistic the young patients evaluate the state of their health and prospect for treatment, the more they are inclined to manifest hysterical features in their behavior.

The state anxiety is connected to the physical functioning level of SF-36 procedure ( $r=-0.41$ ;  $p<0.05$ ). It means that essential limitations of the physical activity caused by amputation are the steady source of high state anxiety at the young age, but not of depression. While the limitations of physical abilities are the source of depression in the older age groups ( $r=-0.34$ ;  $p<0.05$  in the group of 30 to 39,  $r=-0.21$ ;  $p<0.1$  in the group of 40 to 49, and  $r=-0.22$ ;  $p<0.05$  in the group of 50 to 59).

Both the state anxiety ( $r=-0.39$ ;  $p<0.05$ ) and the meticulous traits manifestation ( $r=-0.37$ ;  $p<0.05$ ) are due to the quality of the role functioning caused by the emotional state of SF-36 procedure. These traits are strengthened with the limitations of activity caused by unsatisfactory emotional state.

The painful syndrome intensity of SF-36 procedure is due to emotional breadth ( $r=0.35$ ;  $p<0.05$ ): the more severe pain limits the patient's activity, the stronger sensitivity is suppressed, and

also the smoother such personal traits as vulnerability, ability to feel deeply troubles and failures occur.

The vitality scale of SF-36 procedure is related to the level of state anxiety ( $r=-0.40$ ;  $p<0.05$ ) and the hysterical features manifestation ( $r=-0.42$ ;  $p<0.05$ ) in this age group. The less of vital energy and forces the patient has, the more expressed the states of anxiety and hysteria are.

The mental health scale of SF-36 procedure is related to the indices of state anxiety ( $r=-0.47$ ;  $p<0.05$ ), meticulousness ( $r=-0.41$ ;  $p<0.05$ ) and hysteria ( $r=-0.52$ ;  $p<0.05$ ) in the patients of young age. This fact means that the greater the positive emotions and the more steady the awareness of psychological weightness are, the less state anxiety, meticulous and hysterical accentuations of personality traits are expressed.

Thus, in the age group of 19 to 29 the state of anxiety, meticulous and hysterical accentuations of personality traits are the most related to the SF-36 procedure parameters. With due regard to orientation and combination of the revealed interrelations, it is reasonable to make the following conclusion. Physical disability and limitations connected to it are the steady source of the state anxiety for the young people. This, in turn, causes the effect of the psychological defense mechanisms compensating anxiety and contributing to the development of meticulous and hysterical personality, and also decreasing the emotional sensitivity.

The number of reliable correlations is slightly more in the age group of 30 to 39 (37 persons) in comparison with the previous group (16).

As concerning the life quality of the patients in this age group, the following connections are obvious: physical dysfunction and general state of illness create the depressive background of mood ( $r=-0.34$ ;  $p<0.05$  and  $r=-0.34$ ;  $p<0.05$  respectively). The limitations in activity as a result of the unsatisfactory emotional health increase the state anxiety ( $r=-0.36$ ;  $p<0.05$ ), however they resist to the development of the fixed personality traits ( $r=0.34$ ;  $p<0.05$ ). The intensive pain can cause hyperthymic responses ( $r=-0.42$ ;  $p<0.05$ ). Finally, the combination of trait anxiety and depression is experienced by patients as mental trouble and illness.

Thus, in the age group of 30 to 39 the influence of the limitations caused by amputation on the depression development increases. The hysterical accentuations are observed as the compensating behavior. The decrease in the emotional sensitivity in response to the painful syndrome typical for patients in the age of 19 to 29 is changed by overactive reactions in the age of 30 to 39. The feeling of mental discomfort increases.

In the age group of 40 to 49 (106 persons) a sharp, two-fold (in comparison to the previous group) increase in the number of correlations is stated (32). It points to the fact that the coupling and reciprocal effect of SF-36 procedure, emotional states (anxiety and depression) and the personality traits are strengthened within the structure of the patients' personalities who withstood the extremity amputation.

The indices of SF-36 procedure prove to be adjacent to a greater extent with any given psychological peculiarities of the patients in this age group. The physical health is generally interconnected with depression ( $r=-0.29$ ;  $p<0.01$ ) and the exalted personal traits ( $r=-0.25$ ;  $p<0.05$ ). The emotional background, which disrupts the daily performance, correlates with the trait anxiety and depression ( $r=-0.27$ ;  $p<0.05$  and  $r=-0.24$ ;  $p<0.05$  respectively), meticulousness and exalted behavior ( $r=-0.33$ ;  $p<0.01$  and  $r=-0.36$ ;  $p<0.01$  respectively). For the first time in this research the interrelations between the Social Functioning parameter and such personal traits as lability ( $r=-0.26$ ;  $p<0.05$ ), hysteria ( $r=-0.27$ ;  $p<0.05$ ) and by dysthymia ( $r=-0.23$ ;  $p<0.05$ ) appear in this age group. The orientation of these interrelations is a reflection of the fact that the social activity limitations not only negatively affect the emotional state of patients, but also have the deforming impact on their personal traits. The pain intensity does not correlate with the individual psychological characteristics of a personality in this age group. Apparently, the specific adaptation to pain begins with the age. The vitality aspect proved to be reliably connected to the trait anxiety ( $r=-0.23$ ;  $p<0.05$ ), excitable and meticulous traits ( $r=0.19$ ;  $p<0.05$  and  $r=-0.29$ ;  $p<0.01$  respectively). The more the patient feels like exuberant and enthusiastic, the lower the anxiety is, also the excitable traits manifest more vividly, and the meticulousness is less expressed. And finally, the awareness of mental ill-being is conjugated with the high trait anxiety ( $r=-0.32$ ;  $p<0.01$ ) and the weak manifestation of anxious traits ( $r=0.22$ ;  $p<0.05$ ), also with the meticulous traits manifestation.

Arguably, at the age of 40 to 49 the contingency of the emotional states and personal traits of the patients with the SF-36 procedure characteristics is strengthened. Emotional, physical or mental troubles influence the personal traits and can lead to their deformation in meticulous and anxious. The social activity becomes of great importance at this age. The physical activity limitations caused by health status occur to uncorrelated with such personal traits, as anxiety and depression. At the same time, the influence of depression on the life quality and the patient's personality increases.

The age group of 50 to 59 numbered 80 persons. At the transit into another age group the

number of reliable correlations between the studied parameters remains constant – 32, whereas the significance level is not lower than five per cent. The general health worsening ( $r=-0.26$ ;  $p<0.01$ ), the pain intensity and adjacent limitations ( $r=-0.20$ ;  $p<0.05$ ), everyday performance disrupted caused by the worsened emotional background ( $r=-0.23$ ;  $p<0.05$ ), the limitation in physical activity ( $r=-0.22$ ;  $p<0.05$ ) are accompanied by an increase in depression. Vitality decrease generally contributes to the maintenance of the trait anxiety and depression ( $r=-0.23$ ;  $p<0.05$  and  $r=-0.22$ ;  $p<0.05$  respectively). It is not surprising that an increase in both the state and trait anxiety, and also in depression negatively affects mental health ( $r=-0.22$ ;  $p<0.05$ ,  $r=-0.27$ ;  $p<0.01$  and  $r=0.22$ ;  $p<0.05$  respectively) and the patients perceive that as psychological ill-being.

The meticulous personal traits at the age of 50 to 59 are developed owing to both the state and trait anxiety ( $r=0.35$ ;  $p<0.01$  and  $r=0.34$ ;  $p<0.01$  respectively), depression ( $r=0.29$ ;  $p<0.01$ ), psychological ill-being awareness ( $r=-0.28$ ;  $p<0.05$ ), the limitations in activity caused by unsatisfactory emotional state ( $r=-0.19$ ;  $p<0.05$ ) and by painful syndrome ( $r=-0.18$ ;  $p<0.05$ ), the generally decreased vitality ( $r=-0.22$ ;  $p<0.05$ ).

Thus, at the age of 50 to 59 years the triad of signs “state, traits anxieties and depression” occur to be dominant. The impact of depressive tendencies increases and resembles “the vicious circle”: on the one hand, depression decreases the life quality of the patient and leads to the deformation of personality, whereas on the other hand – the low level of life quality, anxiety, the physical and mental troubles strengthen the depressive tendencies. So at this age the development of meticulous accentuation of personality traits is probable.

In the age group of over 60 (19 persons) the number of interrelations between the studied parameters sharply decreases to 23.

At the elderly age the life quality is connected with the following psychological factors: general health worsening leads to an increase in both the state and trait anxiety ( $r=-0.62$ ;  $p<0.01$  and  $r=-0.69$ ;  $p<0.01$ ), depression ( $r=-0.46$ ;  $p<0.05$ ), cyclothymia ( $r=-0.48$ ;  $p<0.05$ ), meticulous ( $r=-0.48$ ;  $p<0.05$ ) and fixed ( $r=-0.44$ ;  $p<0.05$ ) personal traits. The patients become excessively nagging, meticulous, nerdy, intractable, touchy, and sensitive to the situations of injustice. The limitations in physical activity caused by amputation are accompanied by both the state and trait anxiety ( $r=-0.55$ ;  $p<0.01$  and  $r=-0.48$ ;  $p<0.05$ ).

The vitality and feeling like exuberant and enthusiastic are the most psychologically burdened among other SF-36 procedure indices. Reduction in

the vitality is caused by an increase in anxiety and depression ( $r=-0.59$ ;  $p<0.01$ ,  $r=-0.75$ ;  $p<0.01$  and  $r=-0.54$ ;  $p<0.01$ ), the sharpening of labile ( $r=-0.54$ ;  $p<0.01$ ), hysterical ( $r=-0.46$ ;  $p<0.05$ ) and exalted ( $r=-0.46$ ;  $p<0.05$ ) personal traits. The psychological ill-being of the personality is also strongly interconnected with the experience of depression ( $r=-0.70$ ;  $p<0.01$ ), state and trait anxiety ( $r=-0.63$ ;  $p<0.01$  and  $r=-0.76$ ;  $p<0.01$ ). As concerning the personal traits, such SF-36 procedure parameters as pain intensity ( $r=-0.52$ ;  $p<0.05$ ), vitality ( $r=-0.46$ ;  $p<0.05$ ), and psychological ill-being ( $r=-0.62$ ;  $p<0.01$ ) make the heaviest impact on the development of exalted traits. The elderly people become susceptible, their emotions are clearly expressed, and mood is variable. They are talkative and get distracted to the external events easily.

At the age of over 60 the life quality is all the same tightly connected with the psycho emotional states of a patient, especially with the state anxiety. The influence of depressive tendencies weakens in comparison with the previous age group. However, personal traits' changes towards greater lability, cyclothymia, meticulousness, fixing and exaltation become more vivid.

## Conclusion

The specific character of the interrelations between emotional states, personal traits and life quality depends on age. At the younger age (19 to 39) the state anxiety is most intensively connected to the life quality and individual psychological characteristics of a human-being. However, it is replaced by the trait anxiety at the age of 40 to 49. Later on, in 50 to 59, anxiety is changed by depression, though after 60 years the former returns to its priority positions.

The tendency to compensate anxiety and depression in different age periods is reflected in the patients' personality in various ways: at the age of 19 to 29 hysterical and meticulous features are sharpened, from 30 to 39 – hysterical and fixed properties, for the age group 40 to 49 meticulous and anxious accentuations are typical, as for 50 to 59 year-old patients anxious-depressive states contribute to the development of meticulousness, anxiety and cyclothymia in the personal traits, and finally, after 60 years the situational anxiety is compensated by the fixed and exalted features.

Life quality demonstrates the greatest amount of relationships with the emotional states and personal traits of patients at the age of 40 to 59, especially with depression. At the younger age various aspects of SF-36 procedure are mainly connected to the state anxiety, but not to the trait anxiety and depression. In the patients on the shady side of 60 the decrease in the



life quality indices is reflected in the state anxiety and accentuations of personality traits.

At the age of 19 to 39 and after 60 the relationship between the emotional states, personal traits and life quality are infrequent. That points to the fact that the compensation abilities of personality are limited at these age periods. Therefore, these age groups need additional psychological follow-up as compared to the middle age (40 to 59).

The priority areas of the psychological intervention to young people and in the emerging adulthood are first of all state anxiety, while both the personal anxiety and depressions take the second place. Adaptation to the amputation and subsequent limitations must become the basic task of psychotherapeutic work with patients at the age of 19 to 39.

The age of 40 to 59 is notable for the numerous interrelations between the emotional state, personal traits and life quality. The work with the emotional states and depressive manifestations, first of all, is important for the patients of this age group. It is very important to strive for the improvement of the life quality due to the involvement of the disabled ones into various spheres of substantive work and social activity. The forms of psychological aid suitable for this age could be individual counseling, group sessions (trainings) dedicated to the development of social intelligence, communicative competence, control of emotional processes.

Late in life emotional turmoil and situational anxiety, first of all, must be the areas of psychological intervention. The basic psychotherapeutic work with the patients on the shady side of 60 years should be performed by means of emotional support, vital tonus retention, solving of the psychological issues typical for the elderly age.

### Findings

The findings obtained from the present research allow to assert soundly that the amputees from the different age groups need the individual customized rehabilitation programs taking into account the interrelations between emotional states, individual psychological features of a personality and SF-36 indices procedure.

### Acknowledgements

The authors of the research and this article express their gratitude to the people and the organizations that facilitated the exploration's performance: the Kazan (Privolzhsky) Federal

University, Institute of Pedagogy and Psychology of K(P)FU, Department of Psychology (Department Head – Fakhrutdinova L.R.), Federal State Unitary Enterprise “Kazan Prosthetic Orthopedic Enterprise” of the Ministry of Labor and Social Protection of the Russian Federation, and also to the people with disabilities who participated in this exploration.

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6/26/2014